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**TRANSMITTAL  
FORM**

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

288

Application Number

10/829,505

Filing Date

April 22, 2004

First Named Inventor

SHAN X. WANG

Art Unit

1645

Examiner Name

Attorney Docket Number

12665.0030.NPUS01

**ENCLOSURES (Check all that apply)**

|   |   |   |
|---|---|---|
| <input type="checkbox"/> Fee Transmittal Form                             | <input type="checkbox"/> Drawing(s)   | <input type="checkbox"/> After Allowance Communication to TC                            |
| <input type="checkbox"/> Fee Attached                                     | <input type="checkbox"/> Licensing-related Papers                                       | <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences     |
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| <input type="checkbox"/> After Final                                      | <input type="checkbox"/> Petition to Convert to a Provisional Application               | <input type="checkbox"/> Proprietary Information  |
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| <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53 |   |   |

**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

|              |                                  |          |        |
|--------------|----------------------------------|----------|--------|
| Firm Name    | HOWREY SIMON ARNOLD & WHITE, LLP |          |        |
| Signature    | <i>Heather H. Fan</i>            |          |        |
| Printed name | HEATHER H. FAN                   |          |        |
| Date         | October 27, 2004                 | Reg. No. | 51,664 |

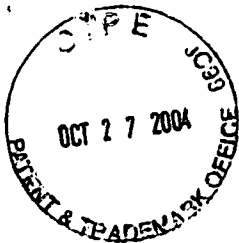
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This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

SHAN X. WANG ET AL.

Serial No.10/829,505

Confirmation No.: 6970

Filed: April 22, 2004

For: MAGNETIC NANOPARTICLES,  
MAGNETIC DETECTOR ARRAYS,  
AND METHODS FOR THEIR USE  
IN DETECTING BIOLOGICAL  
MOLECULES

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Group Art Unit: 1645

Examiner:

Att'y Docket: 12665.0030.NPUS01

Client Docket: S00-163

INFORMATION DISCLOSURE STATEMENT

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
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CERTIFICATE OF MAILING BY "EXPRESS MAIL" 37 C.F.R. 1.8  
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October 27, 2004

*Betsy Hilliard*  
Betsy Hilliard

Sir:

In compliance with the duty of disclosure under 37 C.F.R. § 1.56, it is respectfully requested that this Information Disclosure Statement be entered and the documents listed on attached Form PTO-1449 be considered by the Examiner and made of record. Copies of the listed documents required by 37 C.F.R. § 1.98(a)(2) are enclosed for the convenience of the Examiner.

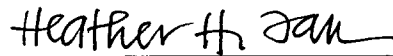
In accordance with 37 C.F.R. §§ 1.97(g), (h), this Information Disclosure Statement is not to be construed as a representation that a search has been made, and is not to be construed to

be an admission that the information cited is, or is considered to be, material to patentability as defined in 37 C.F.R. § 1.56(b).

The present Information Disclosure Statement is being filed prior to the receipt of a first Official Action reflecting an examination on the merits, and hence is believed to be timely filed in accordance with 37 C.F.R. § 1.97(b). No fees are believed to be due in connection with the filing of this Information Disclosure Statement, however, should any fees under 37 C.F.R. §§ 1.16 to 1.21 be deemed necessary for any reason relating to this document, the Commissioner is hereby authorized to deduct the fees from Howrey Simon Arnold & White, LLP Deposit Account 08-3038 referencing docket number 12665.0030.NPUS01.

Applicant respectfully requests that the listed documents be made of record in the present case.

Respectfully submitted,



Date: October 27, 2004

Heather H. Fan (Reg. No. 51,664)  
Glenn W. Rhodes (Reg. No. 31,790)  
Customer No. 23369

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Form PTO-1449 (modified)

Atty. Docket No.  
12665.0030.NPUS01Serial No.  
10/829,505

List of Patents and Publications for Applicant's

Applicant  
Shan X. Wang et al.

INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

Filing Date:  
April 22, 2004Group:  
1645U.S. Patent Documents  
*See Page 1*

Foreign Patent Documents

Other Art  
*See Page 2*

## U.S. Patent Documents

| Exam.<br>Init. | Ref.<br>Des. | Document<br>Number | Date     | Name          | Class | Sub<br>Class | Filing date<br>of App. |
|----------------|--------------|--------------------|----------|---------------|-------|--------------|------------------------|
| /P.D./         | A1           | 5,981,297          | 11/09/99 | Baselt        | 436   | 514          | 02/05/97               |
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| /P.D./         | A3           | 6,582,921 B2       | 06/24/03 | Mirkin et al. | 435   | 6            | 09/20/01               |
|                | A4           |                    |          |               |       |              |                        |
|                | A5           |                    |          |               |       |              |                        |
|                | A6           |                    |          |               |       |              |                        |
|                | A7           |                    |          |               |       |              |                        |
|                | A8           |                    |          |               |       |              |                        |
|                | A9           |                    |          |               |       |              |                        |
|                | A10          |                    |          |               |       |              |                        |
|                | A11          |                    |          |               |       |              |                        |
|                | A12          |                    |          |               |       |              |                        |
|                | A13          |                    |          |               |       |              |                        |
|                | A14          |                    |          |               |       |              |                        |
|                | A15          |                    |          |               |       |              |                        |
|                | A16          |                    |          |               |       |              |                        |
|                | A17          |                    |          |               |       |              |                        |
|                | A18          |                    |          |               |       |              |                        |
|                | A19          |                    |          |               |       |              |                        |
|                | A20          |                    |          |               |       |              |                        |

EXAMINER: /Pensee Do/

DATE CONSIDERED: 05/26/2007

EXAMINER: INITIAL IF REFERENCE CONSIDERED, WHETHER OR NOT CITATION IS IN CONFORMANCE WITH MPEP609; DRAW LINE THROUGH CITATION IF NOT IN CONFORMANCE AND NOT CONSIDERED. INCLUDE COPY OF THIS FORM WITH NEXT COMMUNICATION TO APPLICANT.

INFORMATION DISCLOSURE STATEMENT — PTO-1449 (MODIFIED)

|   |                          |                                       |                          |
|---|--------------------------|---------------------------------------|--------------------------|
| Form PTO-1449 (modified)  |                          | Atty. Docket No.<br>12665.0030.NPUS01 | Serial No.<br>10/829,505 |
| List of Patents and Publications for Applicant's<br><br>INFORMATION DISCLOSURE STATEMENT<br><br>(Use several sheets if necessary) |                          | Applicant<br>Shan X. Wang et al.      |                          |
|   |                          | Filing Date:<br>April 22, 2004        | Group:<br>1645           |
| U.S. Patent Documents<br>See Page 1   | Foreign Patent Documents | Other Art<br>See Page 2               |                          |

### Other Art (Including Author, Title, Date, Pertinent Pages, Etc.)

| Exam.<br>Init. | Ref.<br>Des. | Citation   |
|----------------|--------------|--|
| /P.D./         | C1           | Baselt, D.R., et al.; "A Biosensor Based on Magnetoresistance Technology," <i>Biosensors and Bioelectronics</i> , Vol. 13, Issues 7-8, October 1998, pp 731-739  |
|                | C2           | Miller, M. M., et al.; "A DNA Array Sensor Utilizing Magnetic Microbeads and Magneto-electronic Detection," <i>Journal of Magnetism and Magnetic Materials</i> ; 225, pp 138-144 (2001)                                    |
|                | C3           | Graham, D. L., et al.; "Single Magnetic Microsphere Placement and Detection on-chip Using Current Line Designs with Integrated Spin Valve Sensors: Biotechnological Applications," <i>J. Appl. Phys.</i> , 91: 7786 (2002) |
|                | C4           | Sun, S.; Murray, C.B.; "Synthesis of Monodisperse Cobalt Nanocrystals and their Assembly into Magnetic Superlattices," <i>J. Appl. Phys.</i> , 85: 4325 (1990)   |
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|                | C6           | Slonczewski, John C., et al.; "Micromagnetics of Laminated Permalloy Films," <i>IEEE Trans. Magn.</i> , 24(3): pp. 2045-2054; (1998)   |
|                | C7           | Li, G. et al.; "Detection of Single Micron-Sized Magnetic Bead and Magnetic Nanoparticles Using Spin Valve Sensors for Biological Applications," <i>J. Appl. Phys.</i> , 93(10): pp. 7557-7559 (2003)                      |
|                | C8           | Parkin, S.S.P., et al.; "Exchange-Biased Magnetic Tunnel Junctions and Application to Nonvolatile Magnetic Random Access Memory (Invited); <i>J. Appl. Phys.</i> , 85(8): pp. 5828-5833 (1999)                             |
|                | C9           | van de Veerdonk, R.J.M., et al., "Current Distribution Effects in Magnetoresistive Tunnel Junctions," <i>Appl. Phys. Lett.</i> , 71 (19): pp. 2839-2841 (1997)   |
|                | C10          | Li, G., et al.; "Analytical and Micromagnetic Modeling for Detection of a Single Magnetic Microbead or Nanobead by Spin Valve Sensors," <i>IEEE Trans. Magn.</i> , 39 (5): pp. 3313-3315 (2003)                            |
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| /P.D./         | C12          | Sun, S., et al.; "Monodisperse MFe <sub>2</sub> O <sub>4</sub> (M = Fe, Co, Mn) Nanoparticles," <i>IBM T. J. Watson Research Center, Yorktown Heights, NY</i> ; pp. 1-24 Jan. 14, 2004.                                    |

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|   |                          | Filing Date:<br>April 22, 2004        | Group:<br>1645           |
| U.S. Patent Documents<br>See Page 1   | Foreign Patent Documents | Other Art<br>See Page 2               |                          |

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|--------|-----|---|
| /P.D./ | C13 | Tehrani, S., et al.; "Recent Developments in Magnetic Tunnel Junction MRAM;" <i>IEEE Trans. Magn.</i> , Vol. 36 (5); pp. 2752-2757, (2000)  |
|        | C14 | Sun, S., et al.; "Polymer Mediated Self-Assembly of Magnetic Nanoparticles;" <i>J. Am. Chem. Soc.</i> , Vol. 124 (12); pp. 2884-2885, (2002)  |
|        | C15 | Sellmyer, D.J., et al; "Handbook of Thin Film Materials;" Edited by: Nalwa, H.S., Stanford Scientific Corporation; <i>Academic Press</i> , Vol. 5; pp 337-374 (2002)  |
|        | C16 | Trademark Electronic Search System (Tess) for "MAGARRAY;" <a href="http://tess2.uspto.gov/bin/showfield?f=doc&amp;state=ut16qp.2.1">http://tess2.uspto.gov/bin/showfield?f=doc&amp;state=ut16qp.2.1</a> ; 09/13/04, 3 pages |
|        | C17 | C.B. Murray, et al., <i>MRS Bulletin</i> , Vol. 26 (12): pp. 985-991, (2001)  |
|        | C18 | Bozorth, R.M., "Ferromagnetism," D. Van Nostrand Company, Inc. pp. 190-209 (1951)   |
| /P.D./ | C19 | M. Schena, R.W. Davis, <i>Microarray Biochip Technology</i> , Eaton Publishing, pp. 1-18 (2000)   |
|        | C20 |   |

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